State of Utah

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Department of
Environmental Quality

Richard W. Sprott
Executive Director

DIVISION OF AIR QUALITY
Cherly Heying
Director

DAQE-IN0103110015-08

August 14, 2008

Alex Boulton
Brush Resources Incroporated
P.O. Box 815
Delta, Utah 84624

Dear Mr. Boulton:

Re: Intent To Approve: Modification to Approval Order DAQE-AN0311012-03, Add Elmore Recovery Concentrated Process; Millard County – CDS A; ATT; MACT; NESHAPS; HAPs; Title V MAJOR
Project Code: N010311-0015

The attached document is the Intent to Approve for the above-referenced project. The Intent to Approve is subject to public review. Any comments received shall be considered before an Approval Order is issued. The Division of Air Quality is authorized to charge a fee for reimbursement of the actual costs incurred in the issuance of an Approval Order. An invoice will follow upon issuance of the final Approval Order.

Future correspondence on this Approval Order should include the engineer's name as well as the DAQE number as shown on the upper right-hand corner of this letter. Please direct any questions you may have on this project to Mr. Nando Meli. He may be reached at (801) 536-4052.

Sincerely,

Ty L. Howard, Manager
Major New Source Review Section

cc: Central Utah Public Health Department
Mike Owens, EPA Region VIII

TLH:NM:kw

STATE OF UTAH

Department of Environmental Quality

Division of Air Quality

INTENT TO APPROVE: Modification to Approval Order DAQE-AN0311012-03, Add Elmore Recovery Concentrate Process

Prepared By: Nando Meli, Engineer
(801) 536-4052
Email: nmeli@utah.gov

INTENT TO APPROVE NUMBER

DAQE-IN0103110015-08

Date: August 14, 2008

Brush Resources Incorporated

Source Contact
John Otto
(435) 864-1244

M. Cheryl Heying
Executive Secretary
Utah Air Quality Board

Abstract

Brush Resources Incorporated operates the Delta Mill, a beryllium milling operation located in Millard County, Utah, approximately 10 miles north of Delta. Brush Resources Incorporated has requested approval to add the Elmore Recovery Concentrate process at the Delta Mill. It will be used when the Pilot Plant process is not operating. The Pilot Plant is a small scale solvent extraction process that extracts beryllium using an organic solution. A new process, the Elmore Recovery Concentrate process, will use non-organic solution to process drums of wet sludge. Sulfuric acid is used to leach beryllium out of the sludge. The Elmore Recovery Concentrate process operates as an entirely wet process and will use some of the same equipment that was used for the Pilot Plant process. No particulate emissions occur from this process because of the saturated state of the sludge. Currently they use SX-11 as a solvent in their solvent tank. They have requested that they be allowed to use other solvents that have similar emission traits such as fuel oil #1 in the tank. The Elmore Recovery Concentrate process and the Pilot Plant share use of a scrubber with the Aluminum Iron Sludge process. Millard County is an attainment area of the National Ambient Air Quality Standards for all pollutants. National Emission Standards for Hazardous Air Pollutants subpart C (National Emission Standards for Beryllium) applies to the plant. There will be no change in the tons per year emissions and they will remain as follows: PM_{10} = 0.73, NO_x = 5.31, SO_2 = 9.05, CO = 25.17, VOC = 2.16 and HAPs = 0.36.

The Notice of Intent (NOI) for the above-referenced project has been evaluated and has been found to be consistent with the requirements of the Utah Administrative Code Rule 307 (UAC R307). Air pollution producing sources and/or their air control facilities may not be constructed, installed, established, or modified prior to the issuance of an Approval Order (AO) by the Executive Secretary of the Utah Air Quality Board.

A 30-day public comment period will be held in accordance with UAC R307-401-7. A Notice of Intent to approve will be published in the Millard County Chronicle Progress on August 21, 2008. During the public comment period the proposal and the evaluation of its impact on air quality will be available for the public to review and provide comment. If anyone so requests a public hearing, it will be held in accordance with UAC R307-401-7. The hearing will be held as close as practicable to the location of the source. Any comments received during the public comment period and/or the hearing will be evaluated.

The proposed conditions of the AO may be changed as a result of the comments received. Unless changed, the AO will be based upon the following conditions:

General Conditions:

1. This AO applies to the following company:

   Site Office

   Brush Resources/Delta Mill
   P. O. Box 815
   Delta, Utah 84624
   Phone: (435) 864-2701
   FAX: (435) 864-4004

Delta Mill is located in Millard County 10 miles North of Delta, Utah, on Highway 6.

Universal Transverse Mercator (UTM) Coordinate System: UTM Datum NAD27
4,370 km Northing, 376 km Easting; Zone 12.

2. All definitions, terms, abbreviations, and references used in this AO conform to those used in the Utah Administrative Code (UAC) Rule 307 (R307) and Title 40 of the Code of Federal Regulations (40 CFR). Unless noted otherwise, references cited in these AO conditions refer to those rules.

3. The limits set forth in this AO shall not be exceeded without prior approval in accordance with R307-401.

4. Modifications to the equipment or processes approved by this AO that could affect the emissions covered by this AO must be reviewed and approved in accordance with R307-401.

5. All records referenced in this AO or in applicable 40 Code of Federal Regulations (CFR) Part 61 National Emission Standards for Hazardous Air Pollutants (NESHAP) and/or 40 CFR Part 63 National Emission Standards for Hazardous Air Pollutants for Source Categories (MACT Standards), which are required to be kept by the owner/operator, shall be made available to the Executive Secretary or Executive Secretary's representative upon request, and the records shall include the five-year period prior to the date of the request. Records shall be kept for a minimum period of five years.

6. Brush Resources Incorporated (Brush Resources) shall install and operate the Elmore Recovery Concentrate process and shall conduct its operations of the production of beryllium carbonate and beryllium hydroxide concentrate in accordance with the terms and conditions of this AO, which was written pursuant to Brush Resources Notice of Intent submitted to the Division of Air Quality (DAQ) on October 22, 2007, and additional information submitted to DAQ on December 6, 2007, January 22, 2008, January 30, 2008, February 14, 2008, February 18, 2008, March 19, 2008, April 24, 2008, May 1, 2008, May 2, 2008, and August 4, 2008.

7. This AO shall replace the AO (DAQE-AN0311012-03) dated July 2, 2003.

8. The approved installations shall consist of the following equipment or equivalent*:

   A. S-10 - Small Boiler 12.66 MMBtu/hr
   B. Misc-4A - Pilot Plant
   C. Misc-4B - Elmore Recovery Concentrate (ERC) Plant
   D. Misc-7C - Beryl Backup (West) Generator 100 kW
   E. Misc-7E - Screen Plant Motor 40 kW
   F. Misc-9 - Screen Conveyor Transfer Points
   G. Screening Plant (Capacity 300 tons/hr)
   H. Misc-7A - Diesel Fire Pump 240 bhp
   I. F-5 - Portable Impact Crusher with Fabric Filter 250 tons/hr
   J. F-5 A - Impact Crusher Feed Hopper and Final Product Discharge

Grandfathered equipment installed prior to 1969**

K. S1- Bertrandite Ore Wet Grinder with Wet Scrubber
L. S-2 - Old Leach System with Wet Scrubber
M. S-5 - Beryllium Product Drumming and Wet Scrubber
N. S-6-A - Beryllium Ammonium Recovery, Wet Jet Scrubber
O. S-6-B - Beryllium Scavenger Recovery, Wet Jet Scrubber
P. S-11 - Large Boiler 81.2 MMbtu/hr
Q. Misc-5 - Aboveground Fuel Storage Tank
R. Misc-6 - Sandblasting
S. Misc-7D - Utilities Backup Generator 250 kW
T. BPS-1 - Scrubber

Brush Resources requested the following to be listed**

U. S-3 - New Leach System with Wet Scrubber
V. S-7-A - Beryl Ore Jaw Crusher with Baghouse
W. S-7-B - Beryl (Electric Furnace) with Baghouse
X. S-8-A - Heater Treater with Baghouse
Y. S-8-B - Beryl Ball Mill with Ground Ore Cyclone, Bleed Air Dust Collector
Z. S-9-A - Sulfate Mill Demister
AA. S-9-B - Beryl Sulfate Mill Secondary Scrubber
BB. S-9-C - Beryl Sulfate Mill Primary Scrubber
CC. S-9-D - Beryl Sulfate Mill Venturi Scrubber
DD. T-1 - Fuel Oil Tank
EE. T-2 - Fuel Oil Tank
FF. T-3 - Fuel Oil Tank
GG. T-4 - Fuel Oil Tank
HH. T-5 - Sodium Hydroxide Tank
II. T-6 - Solvent Tank
JJ. F-1 - Paved Haul Road, Bertrandite Ore
KK. F-2 - Bertrandite Ore Storage Pile
LL. F-3 - Beryl Ore Storage Pile
MM. F-4 - Beryl Ore Pave Haul Road
NN. F-7 - Tailing Pond
OO. F-8 - Solvent Extraction Process
PP. Misc-1 - Flakelining
QQ. Misc-2 - Parts Washer
RR. Misc-3 - Ammonia Emissions
SS. Misc-7B - Beryl Backup Generator 325 kW
TT. Misc-8 - Laboratory Baghouse 300 tons/hr
UU. Four Storage Silos each with Baghouse

* Equivalency shall be determined by the Executive Secretary.
** This equipment is listed for informational purposes only.

9. Brush Resources shall notify the Executive Secretary in writing when replacement of the Pilot Plant process with the ERC process listed in Condition #8.C has been completed and

is operational. To insure proper credit when notifying the Executive Secretary, send your correspondence to the Executive Secretary, attn: Compliance Section.

If the replacement has not been completed within eighteen months from the date of this AO, the Executive Secretary shall be notified in writing on the status of the process change. At that time, the Executive Secretary shall require documentation of the continuous installation of the operation and may revoke the AO in accordance with R307-401-18.

Limitations and Test Procedures

10. The backup boiler (S-10) shall not be operated when the main boiler (S-11) is operating except during maintenance or repair periods and/or starting up or shutting down of either boiler. Records of operation shall be kept for all periods when the backup boiler is in operation.

11. Brush Resources shall only use non-organic acids in the ERC process. The pH of the solution in the ERC process shall not be greater than 4.0.

    Monitoring

    Brush Resources shall monitor the pH of the ERC process on a monthly basis.

    Record Keeping

    Brush Resources shall keep a record of the pH measurement taken for the ERC process.

12. Brush Resources shall not operate the Pilot Plant process and the ERC process during the same 7-day period.

    Monitoring

    Brush Resources shall monitor the operation of the Pilot Plant and the ERC process on a weekly basis.

    Record Keeping

    Brush Resources shall keep a record of the hours or operation of the Pilot Plant process and the ERC process.

13. Visible emissions from the following emission points shall not exceed the following values:

    A. ERC Stack when only ERC or Pilot Plant is operating – 15% opacity
    B. ERC Stack when AIS is operating – 20% opacity
    C. All crushers and crusher feeds - 15% opacity
    D. All screens - 10% opacity
    E. All conveyor transfer points - 10% opacity

F. All diesel engines - 20% opacity
G. Conveyor drop points - 20% opacity
H. All other points - 20% opacity

Opacity observations of emissions from stationary sources shall be conducted according to 40 CFR 60, Appendix A, Method 9.

Monitoring:

A visual opacity survey of each affected emission unit shall be performed on a monthly basis by an individual trained on the observation procedures of 40 CFR 60, Appendix A, Method 9. If visible emissions other than condensed water vapor are observed from an emission unit, an opacity determination of that emission unit shall be performed by a certified observer within 24 hours of the initial survey. The opacity determination shall be performed in accordance with 40 CFR 60, Appendix A, Method 9 for point sources, and in accordance 58 FR 61640 Method 203A for fugitive sources.

Recordkeeping:

Brush Resources shall record the date of each visual opacity survey and a list of the emission points checked during the visual opacity survey. Brush Resources shall maintain all records required by this provision and all data required by 40 CFR 60, Appendix A, Method 9 or by Method 203A.

14. The following throughput limits shall not be exceeded:

A. 540,000 tons of bertrandite ore through the auxiliary crusher per fiscal year.
B. 3000 tons of ore per fiscal year through the screening plant.

To determine compliance with the fiscal year limits, Brush shall calculate a new annual total by February 28th of each year using data from the previous year. A fiscal year is defined as a 52 week period, starting with the first Saturday of each year. Records of throughput shall be kept for all periods when the plant is in operation. Throughput shall be determined by operator's logs. The records of throughput shall be kept on a daily basis.

15. The 40 kW motor that drives the conveyor belt shall not exceed 900 hours of operation per fiscal year. The 100 kW emergency generator shall not exceed 336 hours of operation per fiscal year. To determine compliance with the annual limits, Brush shall calculate a new annual total by February 28th of each year using data from the previous fiscal year. Records of engine hours shall be kept monthly for all periods when the motor and/or generator are in operation.

16. Brush Resources shall operate water sprays or chemical dust suppression sprays to the following emissions points to control fugitive emissions:

A. All screens
B. All conveyor transfer points

The sprays shall operate whenever dry conditions warrant or as determined necessary by the Executive Secretary such that the opacity limitations listed in Condition 13 are not exceeded. Sprays shall not be required during freezing temperatures. Visual inspection of the spray systems shall be made weekly to insure proper operating conditions. An operator log shall be maintained of all monitoring provisions. The records shall contain at minimum the date, location, time and results of the inspection.

Fuels

17. Brush Resources shall use only #1 or #2 fuel oil in the generator Misc 7E, the backup generator Misc 7C and the fire pump Misc 7A. Natural gas or fuel oil #6 or lighter may be used in the boilers S-10 and S-11.

18. The sulfur content of any fuel oil or diesel burned shall not exceed 0.85 pounds sulfur per million gross BTU heat input. The sulfur content shall be determined by ASTM Method D-4294-89 or approved equivalent. Certification of fuel used shall be either by Brush Resources own testing or test reports from the fuel marketer.

Federal Limitations and Requirements

19. In addition to the requirements of this AO, all applicable provisions of 40 CFR 61 NESHAP Subpart A, 61.01 to 61.19 (General Provisions) and Subpart C, 40 CFR 61.30 to 61.34 (National Emission Standard for Beryllium) apply to this installation.

20. In addition to the requirements of this AO, all applicable provisions of MACT Standards Subpart A, 63.1 to 63.16 (General Provisions) and Subpart ZZZZ, 40 CFR 63.6580 to 63.6675 (National Emissions Standards for Hazardous Air Pollutants for Stationary Reciprocating Internal Combustion Engines) apply to this installation.

Volatile Organic Compound (VOC) and Hazardous Air Pollutants (HAPs) Limitations

21. The emissions of VOCs and HAPs from the T-6 solvent tank and associated operations shall not exceed:

98.0 tons per fiscal year for VOCs
100 pounds per fiscal year for Hexane
85 pounds per fiscal year for napthalene
475 pounds per fiscal year for all Xylenes
50 pounds per fiscal year for all HAPs combined not listed above

Compliance with each limitation shall be determined on a fiscal year basis. The fiscal year is defined in Condition #14. Based on the last day of each fiscal year, a new 12-month total shall be calculated by February 28th using data from the previous fiscal year. Records of VOC and HAP emissions shall be kept for all periods when the plant is in operation.

The VOC and HAP emissions shall be determined by maintaining a record of VOC and HAP emitting materials used each fiscal year. The record shall include the following data for each material used:

A. Name of the VOC and HAPs emitting material, such as: paint, adhesive, solvent, thinner, reducers, chemical compounds, toxics, isocyanates, etc.

B. Density of each material used (pounds per gallon)

C. Percent by weight of all VOC and HAP in each material used

D. Gallons of each VOC and HAP emitting material used

E. The amount of VOC and HAP emitted by each material used shall be calculated by the following procedure:

$$\text{VOC} = \frac{\%\ \text{VOC by Weight}}{(100)} \times [\text{Density } \frac{(\text{lb})}{(\text{gal})}] \times \text{Gal Consumed} \times \frac{1\ \text{ton}}{2000\ \text{lb}}$$

$$\text{HAP} = \frac{\%\ \text{HAP by Weight}}{(100)} \times [\text{Density } \frac{(\text{lb})}{(\text{gal})}] \times \text{Gal Consumed} \times \frac{1\ \text{ton}}{2000\ \text{lb}}$$

F. The amount of VOC or HAP emitted from all materials used during the fiscal year.

G. The amount of VOCs or HAPs reclaimed for the fiscal year shall be similarly quantified and subtracted from the quantities calculated above to provide the yearly total VOC or HAP emissions.

Records & Miscellaneous

22. At all times, including periods of startup, shutdown, and malfunction, owners and operators shall, to the extent practicable, maintain and operate any equipment approved under this Approval Order, including associated air pollution control equipment, in a manner consistent with good air pollution control practice for minimizing emissions. Determination of whether acceptable operating and maintenance procedures are being used will be based on the information available to the Executive Secretary which may include, but is not limited to, monitoring results, opacity observations, review of operating and maintenance procedures, and inspection of the source. All maintenance performed on the equipment authorized by this AO shall be recorded.

23. The owner/operator shall comply with R307-150 Series. Inventories, Testing and Monitoring.

24. The owner/operator shall comply with R307-107. General Requirements: Unavoidable Breakdowns.

The Executive Secretary shall be notified in writing if the company is sold or changes its name.

This AO in no way releases the owner or operator from any liability for compliance with all other applicable federal, state, and local regulations including R307.

A copy of the rules, regulations and/or attachments addressed in this AO may be obtained by contacting the Division of Air Quality. The Utah Administrative Code R307 rules used by DAQ, the Notice of Intent (NOI) guide, and other air quality documents and forms may also be obtained on the Internet at the following web site:
http://www.airquality.utah.gov/

The annual emission estimations below include non-grandfathered emissions and emissions from the backup boiler when natural gas is used. These emissions are for the purpose of determining the applicability of Prevention of Significant Deterioration, non-attainment area, Maintenance area, and Title V source requirements of the R307. They are not to be used for determining compliance.

The Potential to Emit (PTE) emissions for the Brush Resources non-grandfathered sources are currently calculated at the following values:

	Pollutant	Tons/yr
A.	PM_{10}	0.73
B.	SO_2	9.05
C.	NO_x	5.31
D.	CO	25.17
E.	VOC	2.16
F.	HAPs	0.36

The emissions listed in the 2006 emissions inventory for all sources at Brush Resources are as follows:

	Pollutant	Tons/yr
G.	PM_{10}	24.25
H.	SO_2	0.28
I.	NO_x	12.00
J.	CO	8.46
K.	VOC	76.02
L.	Beryllium	0.26
M.	Hydrofluoric Acid	0.02

Sincerely,

Ty L. Howard, Manager
Major New Source Review Section